



ADEX_R Epoxy Thin Film Rolls/Sheets

Product Data Sheet

Product Description

ADEX_R is a high performance, chemically amplified, i-line sensitive negative dry film epoxy photoresist offering the user exceptional resolution, aspect ratio, adhesion and performance. ADEX is available in 5, 10, 15, 20, 25, 30, 40, 50 and 75µm thicknesses and in roll or sheet format in various shapes and sizes up to 250mm widths.

Advantages

- Wide lamination window
- Easy transfer from PET carrier sheet
- <5% Thickness variation
- Excellent “tenting” capability
- Capable of >5:1 aspect ratios
- Extremely low roughness
- Allows high operating temperatures
- Excellent chemical resistance

Applications

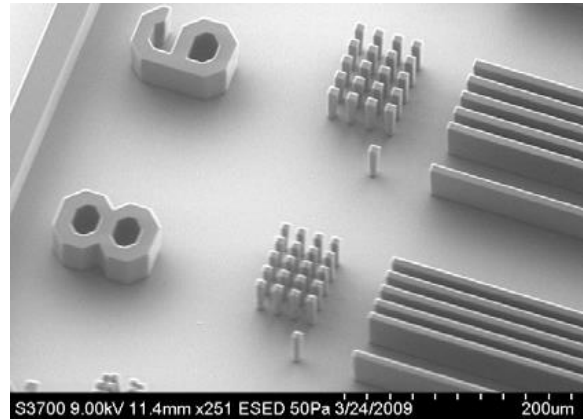
ADEX is suitable for use in a variety of applications including, but not limited to: microfluidics, CMOS, bio sensors, bio assay, force/load sensors accelerometers and gyroscopes; and where any 3D, permanent MEMS structure is needed. It may also be used as a plating mold or in defining metal circuitry such as copper redistribution layers in wafer level packaging. ADEX can also be stacked in multiple layers or supplied in multiple thicknesses to produce thicker features and has shown excellent image quality up to 100µm thicknesses. The use of ADEX dry film will allow for lower capital investment, operating costs and versatility when compared to a liquid spin coat process.

Typical Process Procedure

Use in yellow or LED lighting only. Precut sheets can be used as received and rolls can be cut at room temperature either before or after lamination. A typical process would include removal of the protective film, lamination to the

substrate, exposure, PEB, develop and hardbake (optional, but recommended for best chemical resistance).

6 and 8µm features in 40µm ADEX



Process guidelines*:

Remove PP cover sheet	Peel at room temperature 18-25°C on a cool surface
Laminate, hot roll or vacuum	50-70°C @ 1ft/min (0.3m/min)
Remove Carrier PET	Peel at room temperature 18-25°C on a cool surface
Expose	i-line or broadband (best with a short wavelength (<350nm) exclusion filter)
Post Exposure Bake	95°C for 5-10min or 85°C for 10-20min
Develop	Cyclohexanone
Hardbake (optional)	150-200°C for 1-2 hr

*These guidelines are for reference only.

**IPA rinse.

Typical process conditions:

Thickness	Dose on Silicon	Devl Time	Resolution
µm	mJ/cm ²	min	µm
5	90	5	2
10	125	10	4
15	150	10	5
20	175	12	5
25	200	15	5
30	215	18	6

Typical process conditions (Continued)			
40	250	20	6
50	325	20	7
75	875	30	8

Typical Uncured Film Properties

Coated, Uncured Property	Test Method	Typical Value
Storage Modulus @ 25°C	DMA	1.5GPa
Softening Point (Onset to Tg)	DMA	28°C
Residual solvent	Gravimetric	<1%
Film thickness uniformity		+/-5%

Typical Cured Film Properties

Property	Test Method	Typical Value
Operating Temperature		-60 to 200°C
Glass Transition Temperature	DMA, (Tan Delta)	145°C
CTE Alpha 1 (<Tg) Alpha 2 (>Tg)	TMA	60µm/m°C 160µm/m°C
Storage Modulus @ 25°C @ 100°C @ 150°C	DMA	4.5 GPa 3.5 GPa 2.5 GPa

Storage and Handling

- This material is UV sensitive and should be stored in a dark, dry location. When not in use, we recommend covering the product with black polyethylene to ensure no UV transmission during storage.
- It is also recommended that this product be stored at or below 25°C for maximum shelf life.
- Avoid exposure to high temperatures which could result in an increase of mw and affect the performance and stability of the product.

Recommended Shelf Life

Storage Temperature	Shelf Life
0°C (32°F)	18-24 months
18-23°C (64-73°F)	12 months

Clean-up

- ADEX can be easily cleaned or removed with acetone prior to PEB. Other less stringent solvents and cleaners may be used but may not be as effective at cleaning.
- In case of a spill, activate available exhaust ventilation equipment in the immediate spill area. Wipe up or absorb spilled material with vermiculite or other similar material. Wash area with soapy water to remove residue. Collect absorbed material and water rinse in appropriate containers. It is important to dispose this material in accordance with current federal, state, and local regulations.
- Removal after cure is difficult. It is best removed with laser ablation techniques. It is only partially removed with resist strippers.

Health and Safety

- ADEX can cause severe eye irritation including stinging, redness and eye swelling. Consult a physician immediately if symptoms occur.
- Avoid skin contact. ADEX can cause mild skin irritations.
- If ingested, consult a physician immediately. Do not induce vomiting. The victim's mouth may be rinsed out with water or milk.
- Consult the Product Material Safety Data Sheet for additional information.

Application Assistance

Application specialists are available to assist with the start-up use of ADEX dry film products. For more information, please contact: DJ MicroLaminates, Inc.

Notice: All statements, recommendations and information contained herein are based on test results that we believe to be accurate and reliable. The user shall determine the suitability of this material for his intended purpose and application. No warranties, whether expressed or implied for fitness for a particular purpose, shall apply to this material.

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